



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

09/679,590

10/04/2000

Jcb R. Linton

45118-00026

7330

7590 08/23/2007  
Jeffrey A Divney  
Marsh Fischmann & Breyfogle LLP  
Suite 411  
3151 South Vaughn Way  
Aurora, CO 80014

EXAMINER

BROWN, RUEBEN M

ART UNIT

PAPER NUMBER

2623

MAIL DATE

DELIVERY MODE

08/23/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

|   |                                      |                                       |  |
|---|--------------------------------------|---------------------------------------|--|
| <b>Office Action Summary<br/>for Applications<br/>Under Accelerated Examination</b> | <b>Application No.</b><br>09/679,590 | <b>Applicant(s)</b><br>LINTON, JEB R. |  |
|   | <b>Examiner</b><br>Reuben M. Brown   | <b>Art Unit</b><br>2623               |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
 Since this application has been granted special status under the accelerated examination program,  
**NO extensions of time under 37 CFR 1.136(a) will be permitted and a SHORTENED STATUTORY PERIOD FOR  
 REPLY IS SET TO EXPIRE:**

**ONE MONTH OR THIRTY (30) DAYS, WHICHEVER IS LONGER,**  
 FROM THE MAILING DATE OF THIS COMMUNICATION -- if this is a non-final action or a *Quayle* action.  
 (Examiner: For **FINAL** actions, please use PTOL-326.)

The objective of the accelerated examination program is to complete the examination of an application within twelve months from the filing date of the application. Any reply must be filed electronically via EFS-Web so that the papers will be expeditiously processed and considered. If the reply is not filed electronically via EFS-Web, the final disposition of the application may occur later than twelve months from the filing of the application.

#### Status

- 1) ☒ Responsive to communication(s) filed on 23 August 2006.  
 2) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 3) ☒ Claim(s) 1-11 and 13-24 is/are pending in the application.  
 3a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 4) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
 5) ☒ Claim(s) 1, 4-11 and 13-18 is/are rejected.  
 6) ☐ Claim(s) 2-3 & 19-24 is/are objected to.  
 7) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 8) ☐ The specification is objected to by the Examiner.  
 9) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 10) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 11) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) ☐ All b) ☐ Some \* c) ☐ None of:  
 1. ☐ Certified copies of the priority documents have been received.  
 2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |  |
|---|--|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)<br>2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)<br>3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____. | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____.<br>5) <input type="checkbox"/> Notice of Informal Patent Application<br>6) <input type="checkbox"/> Other: _____. |
|---|--|

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) of rejection. The Fukushima was inadvertently discussed in the rejection mailed 4/21/06.

Applicant's main argument appears to be no motivation to combine. Examiner respectfully disagrees and points out that for instance, with respect to Ayyagari, it was well known at the time the invention was made, that the phased array antenna has advantages over a parabolic antennae especially for use on a vehicle. Furthermore, with respect to Eguchi, the instant reference clearly provides advantages for its usage, such as better performances than closed-loop only method, col. 2, lines 1-25.

With respect to claim 9 applicant argues that Eguchi is not enabled to operate in open-loop & closed-loop. Examiner respectfully disagrees. The tracking mode during the reception of signal is closed loop. However, when the signal is blocked, reads on open loop.

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 4-6, 8-10, 11 & 14-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sklar, in view of Ayyagari, (U.S. Pat # 6,018,659) and Eguchi, (U.S. Pat # 5,537,122).

Considering amended claims 1, 11 & 17, the claimed system for receiving broadcast satellite transmissions in one of air based, land based, and a sea based vehicle, comprising:

‘an orientation system for determining at least a first orientation of the vehicle in three dimensions’, reads on the operation of the aircraft inertial navigation system, INS which provides position and attitude data of the airplane to the controller 46, of Sklar, col. 8, lines 30-62.

‘a controller communicating with the orientation system, which is adapted to receive the orientation data and receive a first location data corresponding to a first location of the vehicle relative to a predetermined positioning system, such that the controller utilizes the first orientation data and first location data to determine a first position control data’, is met by the

Art Unit: 2623

operation of the controller 46, which receives information data from the INS/GPS receiver, col. 8, lines 45-62.

As for the additionally claimed, 'one dimensionally electronically pointable antenna mounted upon a motorized turntable to provide two-dimensional pointing and adapted to receive the first position control data from the controller, resulting in the one dimensionally electronically pointable antenna being pointable in two-dimensions in an open-loop operation, so that a first broadcast satellite signal may be received according to the first position control data, from a satellite having a known location relative to the predetermined positioning system', Sklar teaches that the antenna 38 is pointed at one or more of the satellites 24 or 28 and continuously steered by controller 46, according to the data received from its INS and/or GPS system, col. 6, lines 4-20 & col. 8, lines 45-62.

Regarding the specifically claimed one dimensionally electronically pointable antenna, Sklar discloses that the antenna 38 may or may not be parabolic, col. 3, lines 11-20, which suggests that antennas other than parabolic type may be used. Ayyagari provides a teaching using a phased array antenna (which reads on one dimensionally pointable antenna) for airborne vehicles, in order to track a target satellite, see col. 5, lines 45-50 & col. 6, lines 1-20. It would have been obvious for one of ordinary skill in the art at the time the invention was made, to modify Sklar with the teachings of Ayyagari using the phased array antenna, at least for the known benefit of a simpler design, other than the parabolic antennas optionally used in Sklar.

‘a direct broadcast satellite receiver adapted to process a first RF signal corresponding to the first broadcast satellite signal received by the electronically-pointable antenna to produce at least one of audio, video and data’ is met by Sklar, col. 5, lines 59-64 & col. 8, lines 63-67.

As for the additionally claimed, ‘a closed-loop feedback system adapted to provided at least one output signal wherein the one dimensionally electronically pointable antenna is pointable in two-dimensions using at least one output signal from the closed-loop operation to receive the broadcast satellite signal’, Sklar does not discuss any closed-loop operation. However, Eguchi, which is in the same field of endeavor discloses an antenna tracking system that is enabled to use both open-loop and closed-loop operation, col. 6, lines 55-67 & col. 7, lines 15-53. It would have been obvious for one of ordinary skill in the art at the time the invention was made, to modify Sklar with the feature of closed-loop operation, at least for the advantage of controlling the antenna orientation, at least partially on the basis of the target signal receiving condition, as taught by Eguchi, col. 4, lines 50-65.

‘a signal lock for automatically activating and deactivating the closed-loop system in response to the first broadcast satellite signal received by the one dimensionally electronically pointable antenna, such that the system is alternatively in closed-loop or open-loop operation’ is met by the disclosure of Eguchi, that teaches closed-loop operation is activated and terminated based on the signal level, which meets that claimed subject matter, col. 2, lines 45-52; col. 5, lines 61-67; col. 6, lines 31-48 & col. 7, lines 21-32.

Considering claim 4, as pointed out in the rejection of claim 1, Ayyagari teaches the use of phased array antennas, col. 5, lines 45-50. Also see Eguchi, col. 4, lines 55-60.

Considering claim 5, the antenna 10 of Eguchi is disclosed to be substantially flat within a plane, see Fig. 1B. The angle that the antenna 10 of Eguchi points is relative to the plane.

Considering claim 6, electronic compass & tilt-sensor are necessarily included in the inertial navigation system, INS of Sklar, col. 8, lines 30-61.

Considering claim 8, the claimed technique of an open-loop control using GPS data, corresponds with subject matter mentioned above in the rejection of claim 1, and is likewise treated.

Considering claim 9, the disclosure of Eguchi of switching modes based on the detected signal strength, (col. 6, lines 20-35) reads on the claimed feature of 'detecting a first loss of the first broadcast satellite signal and to activate the open-loop operation'.

Considering claim 10, the closed loop operation also controls the turntable and look angle of the antenna system, see Fig. 3 & col. 6, lines 44-54.

Art Unit: 2623

Considering claim 14, regarding the claimed feature of storing the orbiting position of a satellite, Sklar teaches tracking the coordinates of the satellites 24 & 28, see col. 8, lines 29-67. Official Notice is taken that at the time the invention was made, memory for storing satellite information was old in the art. It would have been obvious for one of ordinary skill in the art at the time the invention was made, to modify Sklar to store the known orbit of a satellite, at least for the desirable effect of enabling the IFE to plan programming so that passengers could be warned well in advance as to which broadcasts will be available for the duration of their flight.

Considering claim 15, the GPS system of Sklar meets the claimed subject matter.

Considering claim 16, see Sklar, col. 5, lines 59-65.

Considering claim 18, see Eguchi, col. 6, lines 10-35.

3. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sklar, Ayyagari & Eguchi, further in view of Donahue, (U.S. Pat # 5,526,022).

Considering claim 7, Sklar discusses orientating the airplane and controlling the antenna at least using the airplane navigational system, but does not teach using solid-state electromagnetic field sensor and fluid field sensor. However, Donahue teaches an orientation



Art Unit: 2623

system with a wide applicability, (col. 14, lines 24-45) such as any automatic leveling device, robotic feedback control, and motorized moving equipment, which uses both the earth's magnetic field and a fluid tilt sensor in determining the desired orientation, see col. 3, lines 1-12; col. 7, lines 59-67 & col. 9, lines 11-31. It would have been obvious for one of ordinary skill in the art at the time the invention was filed, to operate the navigation system of Sklar using the electromagnetic field sensor and fluid tilt field sensor used in Donahue, at least for the desirable benefit of more accurately determining the proper orientation of a device, as taught by Donahue, col. 1, lines 45-49, which obviates the need to rely solely on the existence of a fixed object in determining the orientation of another object.

2. Claim 13 rejected under 35 U.S.C. 103(a) as being unpatentable over Sklar, Ayyagari, Eguchi & Lazar, (U.S. Pat # 6,166,686).

Considering claim 13, Sklar discloses the use of well-known GPS system for orienteering, but does not disclose that the true north is also used. However, Lazar teaches utilizing the GPS to determine location and then deriving the true north using the magnetic north, Abstract; col. 3, lines 8-55 & col. 4, lines 5-51. It would have been obvious for one of ordinary skill in the art at the time the invention was made, to modify Sklar, to determine the true north bearing for the known improvement of more effective orienteering, since there is often wide deviation between magnetic north, which is based on the earth's magnetic field lines, and can be

Art Unit: 2623

found with a compass, and 'true north', which is needed when reading a map to navigate to another object, as taught by Lazar, col. 1, lines 10-55.

***Allowable Subject Matter***

3. Claims 2-3 & 19-24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

A) Adler                      Electronically steering an antenna.

Art Unit: 2623

**Any response to this action should be mailed to:**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

**or faxed to:**

(571) 273-8300, (for formal communications intended for entry)

**Or:**

(571) 273-7290 (for informal or draft communications, please label  
"PROPOSED" or "DRAFT")

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Reuben M. Brown M. Brown whose telephone number is (571) 272-7290. The examiner can normally be reached on M-F(8:30-6:00), First Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christopher Kelley can be reached on (571) 272-7331. The fax phone numbers for the organization where this application or proceeding is assigned is (571) 273-8300 for regular communications and After Final communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Reuben M. Brown

  
REUBEN M. BROWN  
PATENT EXAMINER